

ABSTRACT

A cabled conductor comprises a plurality of transposed strands each comprising one or more preferably twisted filaments preferably surrounded or supported by a matrix material and comprising textured anisotropic superconducting compounds which have crystallographic grain alignment that is substantially unidirectional and independent of the rotational orientation of the strands and filaments in the cabled conductor. The cabled conductor is made by forming a plurality of suitable composite strands, forming a cabled intermediate from the strands by transposing them about the longitudinal axis of the conductor at a preselected strand lay pitch, and, texturing the strands in one or more steps including at least one step involving application of a texturing process with a primary component directed orthogonal to the widest longitudinal cross-section of the cabled intermediate, at least one such orthogonal texturing step occurring subsequent to said strand transposition step. In a preferred embodiment, the filament cross-section, filament twist pitch, and strand lay pitch are cooperatively selected to provide a filament transposition area which is always at least ten times the preferred direction area of a typical grain of the desired anisotropic superconducting compound. For materials requiring biaxial texture, the texturing step preferably includes application of a texturing process with a second primary component in a predetermined direction in the plane of the widest longitudinal cross-section of the conductor.

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